

### Abstract

A composite planetary speed reduction device (1), wherein gears (11), (12), and (13) and rollers (21), (22), and (23) forming a planetary gear speed reduction mechanism (10) and a planetary roller speed reduction mechanism (20) are integrally rotated around a common rotating center axis, respectively. The radius of the sun roller (21) is larger by  $\Delta r_1$  than the radius  $r_1$  of the working pitch circle of the sun gear (11), the radius  $r_{21}$  of the working pitch circle of the planetary gear (12) meshing with the sun gear (11) and the radius  $r_{23}$  of the working pitch circle of the planetary gear (12) meshing with an internal gear (13) are different from each other, and the radius of the planetary roller (22) is smaller by  $\Delta r_1$  than the radius  $r_{21}$  of the working pitch circle of the planetary gear (12). Thus, a slippage ratio  $s_1$  between the sun roller (21) and the planetary roller (22) and a slippage ratio  $s_2$  between the planetary roller (22) and the ring roller (23) are made equal to each other, and a large output torque can be provided from the planetary roller speed reduction mechanism (20).